

ABSTRACT OF THE DISCLOSURE

A cryptographic key distribution method, in which coherent light being suitable for optical fiber communication network is used and high security is secured, is provided. A sending end encodes random numbers so that symmetry probability distributions can be obtained at a receiving end, and also sets light intensity and a modulation index of signal light radiating from the sending end so that the SNR of an eavesdropper is less than 2 dB even when said eavesdropper uses a most suitable receiving equipment at the sending end, and also so that the SNR of the receiving end is more than -10 dB, and transmits signals. The receiving end calculates probability distributions of obtained signals and sets a discrimination threshold value after a set of random numbers was transmitted from the sending end. When the probability distributions have some abnormal states, it is judged that the eavesdropper exists, and distributing the cryptographic key is stopped and a fresh cryptographic key is distributed again.